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09/975,833	10/12/2001	Cheng-Ho Hsu	P-3641.163	2277

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EXAMINER

KEBEDE, BROOK

ART UNIT PAPER NUMBER

2823

DATE MAILED: 05/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/975,833

Applicant(s)

HSU ET AL.

Examiner

Brook Kebede

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 October 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10-18 is/are allowed.
- 6) ☒ Claim(s) 1-9, 19 and 20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 3, 5, 7 and 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 3 recites the limitation "**wherein the die pad is higher than of the plurality of leads**, whereby a space is defined below the die pad to receiving the isolating pad" in lines 1-3. However, it is not clear to the Examiner how "the die pad is higher than that of the plurality of the leads." Is that in terms of height ? Is that in terms of location ? Is that in terms of mass? Since the scope of the claim cannot be determined, the claim lacks clarity in its scope and meaning. Therefore, the claim is indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 2, 7, and 9 are also are rejected as being directly dependent or indirectly of the rejected base claim.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this

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subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-5, 8, 9, 19 and 20 rejected under 35 U.S.C. 102(e) as being anticipated by Huang (US/6,384,472).

Re claim 1, Huang discloses a semiconductor packaging structure comprising: a metal lead frame (100) having a die pad and having a plurality of leads (104) arranged around the die pad (102), wherein the metal lead frame (100) has multiple gaps (not labeled) and each gap (not labeled) is defined by an adjacent two of the plurality of leads (104), and the multiple gaps are filled (not labeled) with an isolating resin (not labeled); a wall portion (124) formed on the metal lead frame (100) and positioned along a periphery (not labeled) of the metal lead frame (100); a chip (130) mounted on the die pad (102) of the metal lead frame (100) and electrically connected to the plurality of leads (104); and a cover (142) mounted on the wall portion (124) to enclose the chip (130) inside the wall portion (124) (see Figs. 1-13; Col. 1, line 27 – Col. 6, line 14).

Re claim 2, as applied to claim 1 above, Huang discloses all the claimed limitation including the limitation having multiple notches (not labeled) and each notch is defined on a bottom surface (114) of the metal lead frame (100) and is communicated with one of the multiple gaps (not labeled), wherein each notch and gap are filled with the isolating resin (not labeled) (see Figs. 1-6 and 8-13).

Re claim 3, as applied to claim 1 above, Huang discloses all the claimed limitation including the limitation wherein the die pad is higher than of the plurality of leads, whereby a space is defined below the die pad to receiving the isolating pad (see Figs. 1-13; Col. 1, line 27 – Col. 6, line 14).

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Re claim 4, as applied to claim 2 above, Huang discloses all the claimed limitation including the limitation wherein the cover (142) is a transparent cover (see Figs. 1-13; Col. 1, line 27 – Col. 6, line 14).

Re claim 5, as applied to claim 3 above, Huang discloses all the claimed limitation including the limitation wherein the cover (142) is a transparent cover (see Figs. 1-13; Col. 1, line 27 – Col. 6, line 14).

Re claim 8, as applied to claim 4 above, Huang discloses all the claimed limitation including the limitation wherein the wall portion is formed of the isolating resin, and the wall portion (124) is integrally formed with the isolating resin (not labeled) that fills the multiple gaps (not labeled) (see Figs. 1-13; Col. 1, line 27 – Col. 6, line 14).

Re claim 9, as applied to claim 5 above, Huang discloses all the claimed limitation including the limitation wherein the wall portion is formed of the isolating resin, and the wall portion (124) is integrally formed with the isolating resin (not labeled) that fills the multiple gaps (not labeled) (see Figs. 1-13; Col. 1, line 27 – Col. 6, line 14).

Re claim 19, Huang discloses a semiconductor packaging structure comprising: a metal lead frame (100) having a die pad (102) and having a plurality of leads (104) arranged around the die pad (102), wherein the metal lead frame (100) has multiple gaps (not labeled) and each gap is defined by an adjacent two of the plurality of leads (104), and the multiple gaps (not labeled) are filled with an isolating resin; a wall portion (124) formed on the metal lead frame (100) and positioned along a periphery of the metal lead frame (100); a chip mounted (130) on the die pad (102) of the metal lead frame (100) and electrically connected to the plurality of leads (104); and

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a transparent resin (142) putted inside the wall (124) portion to enclose the chip (130) inside the wall portion (124) (see Figs. 1-13; Col. 1, line 27 – Col. 6, line 14).

Re claim 20, as applied to claim 19 above, Huang discloses all the claimed limitation including the limitation further having multiple notches and each notch is defined on a bottom surface of the metal lead frame and is communicated with one of the multiple gaps, wherein each notch and gap are filled with the isolating resin (see Figs. 1-6 and 8-13).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huang (US/6,384,472) in view of Ko (US/5,200,367).

Re claim 6, as applied to claim 2 above, Huang discloses all the claimed limitations except wherein the cover is a metal cover.

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Alternative use of metal cover (lid) or transparent material such as glass during packaging of a semiconductor device is well-known in the art. Ko discloses use of metal cover (lid) (33) in order to seal (package) the semiconductor device (see Figs. 3d and 3f; Col. 4, lines 35).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of applicant(s) claimed invention was made to have provided Huang reference with metal cover as taught by Ko because the metal cover would have been provided to cover the open portion of package as well-known in the art.

Re claim 7, as applied to claim 3 above, Huang discloses all the claimed limitations except wherein the cover is a metal cover.

Alternative use of metal cover (lid) or transparent material such as glass during packaging of a semiconductor device is well-known in the art. Ko discloses use of metal cover (lid) (33) in order to seal (package) the semiconductor device (see Figs. 3d and 3f; Col. 4, lines 35).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of applicant(s) claimed invention was made to have provided Huang reference with metal cover as taught by Ko because the metal cover would have been provided to cover the open portion of package as well-known in the art.

Allowable Subject Matter

7. Claims 10-18 are allowed over prior art of record.
8. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record neither anticipates nor renders obvious the claimed subject matter of the instant application as a whole either taken alone or in combination, in particular, prior art of record does not teach "wherein the upper lead frame has a first die pad, a first plurality of leads arranged around the first die pad, a first interval defined between the first die pad and the first plurality of leads, and a first plurality of gaps each is defined by an adjacent two of the first plurality of leads and is communicated with the first interval; the lower lead frame has a second die pad, a second plurality of leads arranged around the second die pad, a second interval defined between the second die pad and the second plurality of leads, and a second plurality of gaps, each of the second plurality of gaps is defined by two adjacent of the second plurality of leads and is communicated with the second interval, wherein when the upper lead frame and the upper lead frame are compressed together, the first interval, the second interval, the first and the second plurality of gaps are communicated with each other for receiving an isolating resin," as recite in claim 10.

Claims 11-18 are also allowed as being dependent of the allowed independent base claim.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure Ramos et al. (US/3,768,986), Stitt (US/4,303,934), Katayama et al. (US/5,343,076), Yamada et al. (US/5,382,546), Chou (US/2002/0089025), and Hung et al. (US/6,476,469) also disclose similar inventive subject matter.

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Correspondence

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brook Kebede whose telephone number is (703) 306-4511. The examiner can normally be reached on 8-5 Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on (703) 306-2794. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Brook Kebede

BK
May 9, 2003

W. David Coleman

Primary Examiner

William D. Coleman